# UNITED STATES PATENT AND TRADEMARK OFFICE

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/074,765 | 02/12/2002 | Ashish Banerji | PD-201157 | 9961 |

7590          04/15/2005

Hughes Electronics Corporation
Patent Docket Administration
Bldg. 1, Mail Stop A109
P.O. Box 956
El Segundo, CA 90245-0956

| EXAMINER |
|---|
| VO, TUNG T |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2613 | |

DATE MAILED: 04/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

| | **Application No.** | **Applicant(s)** |
|---|---|---|
| **Office Action Summary** | 10/074,765 | BANERJI ET AL. |
| | **Examiner** | **Art Unit** | |
| | Tung Vo | 2613 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>03</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on <u>09 November 2004</u>.

2a)☐ This action is **FINAL.**     2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-23* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All  b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

## DETAILED ACTION

### *Response to Arguments*

1.      Applicant's arguments with respect to claims 1-18 ( which are rejected by Wang, Gordon,

Carnahan, Banerji, and Kato references) have been considered but are moot in view of the new

ground(s) of rejection.

2.      Claims 1-2, 11-14 and 16-18 are still rejected by Wu as follows.

### *Claim Rejections - 35 USC § 102*

3.      The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed
> in the United States before the invention by the applicant for patent or (2) a patent granted on an application for
> patent by another filed in the United States before the invention by the applicant for patent, except that an
> international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this
> subsection of an application filed in the United States only if the international application designated the United
> States and was published under Article 21(2) of such treaty in the English language.
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United
> States before the invention thereof by the applicant for patent, or on an international application by another who
> has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention
> thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999

(AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002

do not apply when the reference is a U.S. patent resulting directly or indirectly from an

international application filed before November 29, 2000. Therefore, the prior art date of the

reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA

35 U.S.C. 102(e)).

4.      Claims 1-2, 11-14, and 16-23 are rejected under 35 U.S.C. 102(e) as being anticipated by

Wu (6,731,684 B1).

Re claims 1, 14, 17 and 18-23, Wu discloses a video compression system (fig. 1 and 2),

comprising: means (205 of fig. 1) for grouping video frames that are between consecutive I-

frames into a video data set (GOP, or start new GOP includes P and B frames that are between I

frame and a next I-frame, see col. 8, lines 5-21; col. 10, lines 1-4); means (116 of fig. 1; 215 and

220 of fig. 2) for splitting the video data set into a plurality of homogeneous files (P or B files);

and means (225 of fig. 2; 120-127 of fig. 1) for individually compressing each of the

homogeneous files (fig. 3, e.g. each encoder can compresses each P or B file); means (140, 150

of fig. 1) for multiplexing the individually compressed files into a bit stream.

Re claim 2, Wu further discloses wherein the video frames include P-frames and B-

frames (col. 4).

Re claim 11, Wu further discloses wherein said compressing includes bit plane encoding

quantized transform coefficients obtained from the video data set (note each MPEG-ENCODER

inherently encodes  each filed in bit plane encoding quantized transform coefficients).

Re claim 12, Wu further discloses wherein said compressing includes performing a run-

length encoding of bit planed encoded coefficients (MPEG encoder inherently has VLC).

Re claim 13, Wu further discloses wherein said homogeneous files have similar statistical

properties (Each Video comprises GOP including I, P, B; which are similar statistical properties).

Re claim 16, Wu further discloses a computer-readable medium (160, 165 of fig. 1)

bearing instructions for compressing video, said instructions being arranged, upon execution by

one or more processors, to perform the steps of the methods.

## Claim Rejections - 35 USC § 103

5.      The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6.      Claims 3-5 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu

(6,731,684 B1) in view of Carnahan (US 5,414,780).

Re claims 3-5, Wu teaches splitting video serial into panels and storing the B components

and P components in separate files (Frame Reordering delay 215 of fig. 2) but not include storing

mode information of the video data set and motion components that includes storing horizontal

components of the video data set and vertical components of the video data set in separate files

as claimed.

However, Carnahan teaches storing mode information of the video data set (horizontal

and vertical vectors) and motion components NxM horizontal and vertical image data block

include vectors) that include storing horizontal components of the video data set and vertical

components of the video data set in separate files (col. 3, line 49-col. 4, line 3) and performing a

run-length encoding of bit planed encoded coefficients (col. 11 and 12, note TRANSFORMER

(52), QUANTIZER (54), and CODER (56) performs transforming, quantizing and nm-length

coding the video data set).

Therefore, taking the teachings of Wu and Carnahan as a whole, it would have been

obvious to one of ordinary skill in the art to incorporate the step of storing the mode information

and motion components into the separate files (memories) and the transformer, quantize and

coder of Carnahan into the encoder of Gordon for the same purpose of run-length coding the

transformed, quantized video data set that retrieves from the separate files.

Doing so would provide the quantization process reduces the magnitude or number of

bits of each quantized word and the coder circuit to implement coding in an efficient manner.


7.      Claims 6, 7, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu

(6,731,684 B1) in view of to claim 1 and in view of Kato et al. (US 5,719,986).

Re clam Claims 6, 7, and 16, Wu teaches the encoder for encoding the video sequence

into the MPEG compliant transport stream using predicted frame information but not include

storing mode 3 B- frame components of the video data set and mode 0, 1, and 2 B-frame

components of the video data set in separate files and different color components of the video

data set in different files as claimed.

However, Kato teaches storing mode 3 B- frame components of the video data set (61 of

fig. 3, note intra prediction for B-frame and mode 0, 1, and 2 B-frame components (14, 23 of fig.

3, note forward prediction, backward prediction, and bi-directional prediction) of the video data

set in separate files and storing different color components of the video data set in different files

(12 of fig. 3, see also fig. 5C, note Y, Cb and Cr are different color components).

Taking the teachings of Gordon and Kato as a whole, it would have been obvious to one

of ordinary skill in the art to incorporate the teachings intra-prediction mode for B- frame having

forward, backward, and bi-directional prediction of Kato into the encoder of Wu to improve

efficiency of encoding. Doing so would provide to a decoder a higher quality image.

8.    Claims 8 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu

(6,731,684 B1) in view of to claim 1, and further in view of Weinberger et al (US 5,680,129).

Re claims 8 and 16, Wu fails particularly teach mapping negative values in one of the

homogeneous files into positive values, and file header as claimed.

However, Weinberger teaches mapping negative values in one of the homogeneous files

into positive values (col. 15, lines 59-64), and file header. Therefore, taking the teachings of Wu

and Weinberger as a whole, it would have been obvious to one of ordinary skill in the art to

modify the technique of mapping negative values into one of homogeneous files into positive

values into the encoder of Gordon to improve performance of encoding color image. Doing so

would result in a more efficient compression of the image.

9.    Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu

(6,731,684 B1) in view of to claim 1 and in view of Moroney et al. (US 5,771,239).

Re claims 9 and 10, Wu does not particularly teach applying a grammar based code and a

YK algorithm as claimed. However, Moroney teaches the MPEG coding technique uses a

formal grammar ("syntax") and a set of semantic rules for the construction of bitstreams to be

transmitted, wherein the grammar encoding would obviously have YK algorithm to encode the

homogeneous files. Therefore, taking the combined teachings of Moroney and Wu as a whole, it

would have been obvious to one of ordinary skill in the art to incorporate the teachings of

Moroney into the method of Wu to improve coding efficiency.


## *Conclusion*

10.    The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure.

Liu et al. (US 6,731,685) discloses a method and apparatus for determining a bit rate

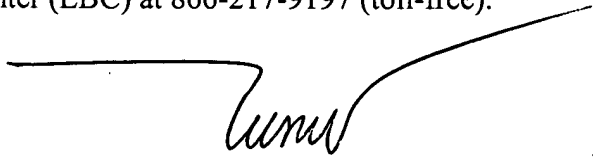need parameter in a statistical multiplexer.


## *Contact Information*

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Tung Vo whose telephone number is 571-272-7340. The

examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Chris. Kelley can be reached on 571-272-7331. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system.  Status information for published applications

may be obtained from either Private PAIR or Public PAIR.  Status information for unpublished

applications is available through Private PAIR only.  For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tung  Vo
Primary Examiner
Art Unit 2613